

We Claim:

1. An isolated nucleic acid molecule comprising a nucleotide sequence that encodes the amino acid sequence shown in Figure 14.
2. The isolated nucleic acid molecule of claim 1 comprising the DNA sequence of Figure 14.
3. An isolated nucleic acid molecule comprising the DNA sequence of Figure 14.
4. The isolated nucleic acid molecule of claim 3 comprising a nucleotide sequence that encodes the amino acid sequence shown in Figure 14.
5. An isolated nucleic acid molecule comprising a nucleotide sequence that hybridizes to the nucleotide sequence of Claim 1 or 3 under stringent conditions and encodes a functionally equivalent gene product.
6. An isolated nucleic acid molecule comprising a nucleotide sequence that hybridizes to the nucleic acid of claim 1 or 3 under moderately stringent conditions and encodes a functionally equivalent SM38 gene product.

7. An isolated nucleic acid molecule that is a *SM38* antisense molecule.
8. An isolated polypeptide comprising the amino acid sequence of Figure 14.
9. An isolated polypeptide comprising the amino acid sequence of Figure 14.
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10. An isolated polypeptide comprising the amino acid sequence encoded by a nucleotide sequence that hybridizes to the nucleotide sequence of Claim 1 or 3 under stringent conditions and encodes a functionally equivalent gene product.
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11. An isolated polypeptide comprising the amino acid sequence encoded by a nucleotide sequence that hybridizes to the nucleotide sequence of Claim 1 or 3 under moderately stringent conditions and encodes a functionally equivalent gene product.
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12. A purified fragment of a SM38 protein comprising the cyclase domain of the SM38 protein.
13. A chimeric protein comprising a fragment of a SM38 protein consisting of at least 6 amino acids fused via a covalent bond to an amino acid sequence of a second protein, in which the second protein is not a SM38 protein.

14. An antibody which is capable of binding a SM38 protein.
15. A recombinant cell containing the nucleic acid of claim 5 or 6.
16. A method of producing a CD38 protein comprising growing a recombinant cell containing the nucleic acid of claim 5 or 6 such that the encoded CD38 protein is expressed by the cell, and recovering the expressed CD38 protein.
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17. A method for identifying a compound that activates CD38 enzyme activity comprising (i) contacting a cell expressing CD38 with a test compound in the presence of substrate and measuring the level of CD38 activity; (ii) in a separate experiment, contacting a cell expressing CD38 protein with a vehicle control in the presence of substrate and measuring the level of CD38 activity where the conditions are essentially the same as in part (i), and then (iii) comparing the level of CD38 activity measured in part (i) with the level of CD38 activity in part (ii), wherein an increased level of CD38 activity in the presence of the test compound indicates that the test compound is a CD38 activator.
18. A method for identifying a compound that inhibits CD38 enzyme activity comprising (i) contacting a cell expressing CD38 with a test compound in the presence of a

chemoattractant and substrate and measuring the level of CD38 activity; (ii) in a separate experiment, contacting a cell expressing CD38 and substrate and measuring the level of CD38 activity, where the conditions are essentially the same as in part (i) and then (iii) comparing the level of CD38 activity measured in part (i) with the level of CD38 activity in part (ii), wherein a decrease level of CD38 activity in the presence of the test compound indicates that the test compound is a CD38 inhibitor.

19. The method of claim 17 or 18 further comprising the presence of a chemoattractant in step (i) and (ii) and wherein the cell expressing CD38 expresses a chemoattractant receptor.

20. The method of claim 17 or 18 wherein CD38 ADP-ribosyl cyclase activity is measured.

21. The method of claim 17 or 18 wherein levels of cADPR are measured.

22. The method of claim 17 or 18 wherein the level of NAADP is measured.

23. The method of claim 17 or 18 wherein intracellular calcium levels are measured.

24. The method of claim 17 or 18 wherein CD38 mediated cell migration is measured.

25. A method for identifying a compound that modulates the activity of CD38 comprising the steps of:

- (i) contacting a test compound with a CD38 protein;
- (ii) determining whether said compound binds to the CD38 protein;
- (iii) and selecting a test compound that binds to said CD38 protein as being a

compound that can be used to modulate the activity of the CD38 protein.

26. A method for identifying a compound that activates SM38 enzyme activity comprising (i) contacting a cell expressing SM38 with a test compound in the presence of substrate and measuring the level of SM38 activity; (ii) in a separate experiment, contacting a cell expressing SM38 protein with a vehicle control in the presence of substrate and measuring the level of SM38 activity where the conditions are essentially the same as in part (i), and then (iii) comparing the level of SM38 activity measured in part (i) with the level of SM38 activity in part (ii), wherein an increased level of SM38 activity in the presence of the test compound indicates that the test compound is a SM38 activator.

27. A method for identifying a compound that inhibits SM38 enzyme activity

comprising (i) contacting a cell expressing SM38 with a test compound in the presence of a chemoattractant and substrate and measuring the level of SM38 activity; (ii) in a separate experiment, contacting a cell expressing SM38 and substrate and measuring the level of SM38 activity, where the conditions are essentially the same as in part (i) and then (iii) comparing the level of SM38 activity measured in part (i) with the level of SM38 activity in part (ii), wherein a decrease level of SM38 activity in the presence of the test compound indicates that the test compound is a SM38 inhibitor.

28. The method of claim 26 or 27 wherein levels of cADPR are measured.

29. The method of claim 26 or 27 wherein the level of NAADP is measured.

30. The method of claim 26 or 27 wherein intracellular calcium levels are measured.

31. The method of claim 26 or 27 wherein CD38 mediated cell migration is measured.

32. A method for identifying a compound that modulates the activity of SM38 comprising the steps of:

(i) contacting a test compound with a SM38 protein;

(ii) determining whether said compound binds to the SM38 protein;  
(iii) and selecting a test compound that binds to said SM38 protein as being a compound that can be used to modulate the activity of the SM38 protein.

33. A method of modulating the migratory activity of cells expressing CD38 comprising contacting said cells with a CD38 inhibitor.

34. A method of modulating the migratory activity of cells expressing CD38 comprising contacting said cells with a CD38 activator.

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